Molding materials based on ...

6 tables. The most important English-language references are: B. Parkyn, Brit. Plast. 32, 29 (1959), J. D. Davies et al., Appl. Plast. 2, 11, 45 (1959); 2, 12, 43 (1959); R. B. White, R. S. Jackson, Mod. Plast. 36, 7, 117 (1959); 36, 9, 107 (1959).

Table 6. Properties of products from molding materials based on various polyesters and phenoplasts. Legend: (A) Properties, (B) polyester, (C) PN-1, (D) TMGF-11, (E) TPAS, (F) TPAS + PN-1, (G) phenol formaldehyde resin with mineral filler, (H) strength on static bending, kg/cm^2, (J) specific impact strength, $kg \cdot cm/cm^2$, (K) condition of rods after 5 hr at 200°C, (L) strength after 5 hr at 200°C, %, (M) heat resistance according to Martens, °C, (N) water absorption after 24 hr, g/dm^2, (P) specific gravity, (Q) surface resistivity, ohms, (R) volume resistivity, ohm·cm, (S) tan δ at $1 \cdot 10^6$ c/s, (T) dielectric permeability, (U) rod covered with deep cracks, (V) small cracks, (W) no cracks, (X) test impossible because samples destroyed on heating.

Card 3/6

15.9210,
15.9350

AUTHORS: Trostyanskaya, Ye. B., Vinogradov, V. M., Khazanskiy, Yu. N.

TITLE: Molding compositions on the basis of hardening polyesters. Polyester glass fiber plastics

PERIODICAL: Plasticheskiye massy, no. 10, 1962, 14 - 16

TEXT: On the basis of papers by J. D. Davies et al. (Appl. Plast., 2, 11, 45 (1956), 2, 12, 43 (1959)) it is suggested that regular distribution of glass fibers in glass reinforced plastics (GRP) should be ensured by adding thixotropic additives in the following process: The filler (quartz flour, kaolin, chalk, talcum, or mica) and a thickener are mixed in a ball mill (mixture "a"); after adding a polyester (polyacrylate or polyacrylate maleinate) to mixture "a"; paste "b" is formed in a mixer with z-blades and is applied to a continuous band of glass fiber; the excess is removed and the band is cut into pieces; the polyester is then mixed with mixture "a" until it gives a damp powder (mixture "c") which in turn is mixed with the cut glass fiber covered by paste "b". At 120°C and a pressure of 90 kg/cm², the molding composition according to Raschig reached a viscosity of 200 mm

Card 1/2

owing to preliminary impregnation of the glass fiber with the thermoplastics. In this way, GRP was obtained with 50% glass fiber uniformly distributed. The bending modulus is 800 - 850 kg/cm^2 for GRP containing 20% glass fiber and 1400 kg/cm^2 with 50% glass fiber. The physicomechanical properties depend on the type of mineral filler: the bending modulus of rupture in bending was 690 kg/cm^2 with quartz flour and 1290 kg/cm^2 with talcum. The resulting GRP had the following composition (in portions by weight): 30 - 40 polyester, 20 - 50 glass fiber, 5 - 50 powdered filler, and 10-30 thickener. The bending modulus of GRP depends on the length of glass fiber; it is 395 - 450 kg/cm^2 with 10% glass fibers 5 mm long, and 525 - 640 kg/cm^2 when they are 15 mm long. If the glass fiber is longer than 15 - 20 mm, the bending modulus decreases and the measured values become too scattered. The highest heat resistance of GRP was reached with polyacrylate maleinate. For the type ТФАС+ФН-1 (TFAS+FN-1) binder, after 140 hrs of ageing at 200°C, a weight loss of 2% was observed: with 40% binder, 20% glass fiber, and 40% mineral filter. The impact strength and other mechanical properties of the test specimens proved to be of special interest. There are 4 figures and 5 tables.

Card 2/2

TROSTYANSKAYA, Ye.B.; VINOGRADOV, V.M.; KAZANSKIY, Yu.N.

Molding composition on the base of hardening polyesters.
Report No.1: Polyester molding compositions with powdered
fillers. Plast.massy no.7:15-19 '62. (MIRA 15:7)
(Plastics—Molding)
(Esters)

TROSTYANSKAYA, Ye.B.; VINOGRADOV, V.M.; KAZANSKIY, Yu.N.

Molding compounds based on hardening polyesters. Polyester glass fibers. Plast.massy no.10:14-16 '62. (MIRA 15:11)

(Glass fibers)
(Esters)

ACCESSION NR: AP3001574 S/0191/63/000/006/0013/0015

AUTHOR: Trostyanskaya, Ye. B; Venkova, Ye. S.; Kazanskiy, Yu. N.; Stepanov, A. I.; Aristovskaya, L. V.; Kosareva, N. G.

TITLE: Combined hardenable polyesters for preparing articles by the spray coating method

SOURCE: Plasticheskiye massy, no. 6, 1963, 13-15

TOPIC TAGS: polymaleate, polyacrylates, spray-coating of glass fiber

ABSTRACT: Recipes were worked out for curable polyesters (PM-1 type polymaleate with polyacrylates 712 and TGM-3) which are suitable for making large objects of complex shape by spraycoating of glass fiber. Partially removing the lubricant from the glass fiber strengthens the final spray-coated article, permits more even distribution of resin on the fiber. Curing for several hours at 150 degrees appears optimum. A glass fiber laminate made of glass cloth ASTT(b)-S sub 2, without lubricant removal, was formed at ambient temperature under 0.35 kg/sq. cm. After 6 days at 20C the strength was only 1700 kg/sq. cm.; upon curing 4 hours at 150 degrees, strength increased to 3500 kg/sq. cm. Amount of resin binder was 32%; heating for additional 50 hours at 200 degrees decreased the weight by only about 4%. "The authors express thanks to Ya. D. Avrasin for supplying them polyacrylate

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ACCESSION NR: AP3001574

712 for the study." Orig. art. has: 4 tables and 1 figure.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 01Jul63	ENCL: 00
SUB CODE: 00	NO REF SOV: 002	OTHER: 000

Card 2/2

L 18959-63 EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Ps-4/Pc-4/Pr-4
RM/WW/MAY
ACCESSION NR: AP3006537 S/0191/63/000/009/0030/0033 81

AUTHORS: Trostyanskaya, Ye. B.; Kazanskiy, Yu. N.; Skorova, A. V.; Poymanov, A. M.; Snegireva, I. A.

TITLE: Determining the quality of glass cloth and glass roving sizing

SOURCE: Plasticheskiye massy*, no. 9, 1963, 30-33

TOPIC TAGS: glass cloth sizing, glass, glass roving sizing, fiberglass water resistance

ABSTRACT: A method was worked out for evaluating AGM-3 sizing and conditions were recommended for sizing FN fiberglass with AGM-3. The amine number of the sizing film was determined by titration with HCl, readings being taken in the first couple minutes of the titration. The continuity of the sizing film was determined by electrically measuring the amount of moisture that would evaporate through the film, using an IDN-1/Q-meter, AVM2 voltmeter and KVTI/EN self-recording potentiometer. Orig. art. has: 7 figures, 1 equation.

Card 1/2

TROSTYANSKAYA, Ye.B.; VENKOVA, Ye.S.; KAZANSKIY, Yu.N.; STEPANOV, A.I.; ARISTOVSKAYA, L.V.; KOSAREVA, N.G.

Combined setting of polyesters for the preparation of articles by the directed fiber preform process. Plast. massy no.6:13-15 '63. (MIRA 16:10)

ACCESSION NR: AP4041785 S/0191/64/000/007/0052/0055

AUTHOR: Trostyanskaya, Ye. B., Poymanov, A. M., Kazanskiy, Yu. N.

TITLE: Methods for investigating the surface properties of glass fibers used for making glass plastics

SOURCE: Plasticheskiye massy*, no. 7, 1964, 52-55

TOPIC TAGS: glass fiber, glass plastic, wettability, electrical conductivity resin, organosilane, glass fiber wettability, glass fiber surface property, plastic conductivity, filler AM-2, filler MR-1, trimethylchlorosilane, binder adhesion

ABSTRACT: Since the adhesion of binders to the glass fiber is one of the main factors determining the strength of glass plastics, it is very important to investigate the wettability of finished glass fibers by binders. Inorder to investigate the surface properties of glass fibers, methods were developed to study the surface electrical conductivity of the elementary glass filaments and their wettability by liquids and resins. Two methods based on the measurement and photography of the meniscus of liquid around the fiber are discussed, and theoretical calculations are presented for the meniscus forms corresponding

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ACCESSION NR: AP4041785

to different wetting angles. The apparatus for determining fiber wettability is illustrated in Fig. 1. of the Enclosure. Glass fibers treated with organosilane fillers (AM-2 with amino and imino groups, MR-1 with functional phenyl groups) as well as fibers treated with trimethylchlorosilane were investigated, and the different wetting angles were determined. Pure glass fibers were completely wetted by water, the contact angle being zero. These results show that the wettability of water-repellent glass fibers is directly correlated with the polarity of the radicals present on their surface. The change in polarity and wettability of the glass surface due to chemical treatment also causes the surface conductivity to change. The direct measurement of the surface resistance of the elementary fibers is therefore the most suitable method for determining the water-repellency and the quality of the finish. The apparatus for measuring the electrical conductivity of the fiber surface is described. It was found that the surface conductivity of glass fibers is higher by 1.5-2 orders of magnitude than that of block glass. This shows the substantial difference between the surface composition of glass fibers and that of block glass. Orig. art. has: 5 figures and 5 formulas.

ASSOCIATION: None

Card 2/4

ACCESSION NR: AP4041785

ENCL: 01

SUBMITTED: 00

OTHER: 008

SUB CODE: MT

NO REF SOV: 010

Card 3/4

ACCESSION NR: AP4041785

ENCLOSURE: 01

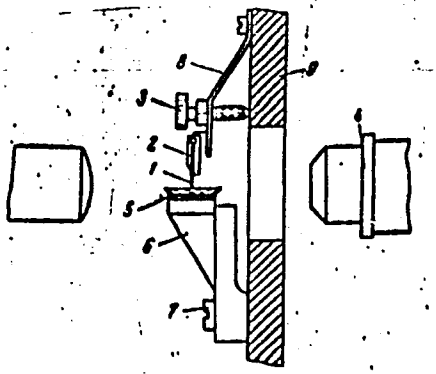

Fig. 1. Schematic representation of a set-up for determining fiber wettability: 1 - fiber; 2 - clamp; 3 - screw for moving the fiber along the axis of the objective; 4 - objective; 5 - container of fluid; 6 - bracket; 7 - screw; 8 - holder; 9 - microscope stage.

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Card

ACCESSION NR: AP4043322 S/0191/64/000/008/0020/0023

AUTHOR: Trostyanskaya, Ye. B.; Poymanov, A. M.; Kazanskiy, Yu. N.

TITLE: Dependence of the strength of glass-reinforced plastics on changes in the binder contact angle of glass fibers made water repellent

SOURCE: Plasticheskiye massy*, no. 8, 1964, 20-23

TOPIC TAGS: glass reinforced plastic, coupling agent, glass fiber finish, glass reinforced plastic strength

ABSTRACT: The effect of glass-fiber finish on the strength of glass-reinforced plastics was investigated by determining the wettability (contact angle) of the fiber by various binders at 20 to 120C. The alkali-free glass fiber used was lubricated, heat cleaned, and unfinished or finished with a coupling agent (the MR-1 type, in which hydroxyphenoxy groups remain after application; the amino- and imino-group-containing coupling agents AM-2 and AGM-3; or trimethylchlorosilane) or by chlorination followed by substitution of Cl atoms by ethyl, allyl, phenyl, or methacryloyl radicals. The

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ACCESSION NR: AP4043322

resins used were ED-6 epoxy resin, K-81 organosilicon resin, FN binder (a solution of phenol-formaldehyde resin in furfural), or 911 polyester resin. Wettability with water was also determined. It was found that fiber wettability with these binders decreases with increasing water repellency. Mechanical tests for oriented glass-reinforced plastics made with the above materials showed that the strength characteristics of epoxy and phenol-furfural glass-reinforced plastics depend on the binder-fiber contact angle and are independent of the presence of a chemical bond between the fiber and the binder. Orig. art. has: 4 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3083 ENCL: 00

SUB CODE: MT NO REF SOV: 010 OTHER: 011

Card 2/2

TROITYANSKAYA, Ye.B.; [illegible]OV, A.M.; KAGAN, Yu.M.

Method for analyzing the surface characteristics of glass fibers to be used for the manufacture of glass plastics. Part.massy no.7: 42-45 '64. (MIRA 17:10)

L 41809-65 EWP(e)/EPA(e)-2/EWT(m)/EPF(c)/EWP(t)/EPR/EWP(t)/T Pc-4/Pr-4/Ps-4
RPL WW/RM

[illegible] the strength of glass-reinforced plastics

SOURCE: Mekhanika polimerov, no. 1, 1965, 26-35

TOPIC TAGS: polymer physical chemistry, reinforced plastic, fiberglass, [illegible] adhesion

ABSTRACT: A number of statistical [illegible] the interaction [illegible] strength of glass reinforced plastics [illegible]

[illegible] response of GRP to external influences depends on [illegible] place at the fiber-binder boundary.

In many cases it was shown that the strength of GRP is a function of the adhesion of the binder to the fiber. An assumption had been advanced [illegible] the adhesion of the polymer is influenced by the chemical composition

Card 1/4

L 41809-65
ACCESSION NR: AP5011987

... and finishing agent. The increased adhesional strength ...

by ascribing it to improved wetting of the fiber by the binder is ... established fact that finishing can only impair wetting of the fiber ...

step-wise polymerization, and free-radical polymerization ... free aluminum borosilicate glass fibers with preferential orientation ... was removed by keeping the ...

Card 2/4

ACCESSION NR.

Card 3/4

lying failure of GRP products. The materials tested [illegible] of GRP, perhaps with application to materials

Core

L 20406-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6008402 (A) SOURCE CODE: UR/0374/66/000/001/0067/0073

AUTHOR: Trostyanskaya, Ye. B.; Novikov, V. U.; Kazanskiy, Yu. N. 48 13

ORG: Moscow Aviation Technological Institute (Moskovskiy aviatsionno-tekhnologicheskiy institut)

TITLE: Effect of increased temperatures on the strength of solidified resins and of materials of the same base. 1. Effect of increased temperatures on the strength of solidified phenolformaldehyde resins 15 16

SOURCE: Mekhanika polimerov, no. 1, 1966, 67-73

TOPIC TAGS: resin, phenolformaldehyde, temperature dependence, tensile strength, compressive strength, thermal effect

ABSTRACT: An investigation of changes in tensile strength and of weight diminution in phenolformaldehyde resins was carried out under high temperature conditions. It was revealed that a spontaneous transition from the first to the second and third structural stages takes place with concomitant increase in the stabilization of strength properties in the process of thermal destruction. In all the resins investigated and for every structural stage, the direct dependence between the relative change of ultimate compression strength and the relative change of weight were established irrespective of the conditions of thermal treatment. The investigation was carried out on standard samples obtained by molding a mixture of hardened resin and powder of the same, but preliminarily hardened, resin. Samples produced in this

Card 1/2 UDC: 678:539.4.019.3

L 20406-66

ACC NR: AP6008402

way have better physical and mechanical properties in comparison with articles made of molding powders with an inactive filler. The lowest w ght diminution in the process of transition from one stage to another is typical of the phenolic-furfural-formaldehyde resins, and the highest degree of strength retention is typical of the phenolic-aniline-formaldehyde resins. Orig. art. has: 9 figures and 2 tables. [Based on authors' abstract.]

[NT]

SUB CODE: 11,20/ SUBM DATE: 16Feb65/ ORIG REF: 009/ OTH REF: 008/

Card 2/2 BK

L 08796-67 EWT(m)/EWP(j) IJP(c) WW/RM

ACC NR: AP6030849 (A,N) SOURCE CODE: UR/0191/66/000/009/0031/0036

AUTHOR: Trostyanskaya, Ye. B.; Stankoy, G. G.; Kazanskiy, Yu. N. 34

ORG: none

TITLE: Molding properties of materials based on curable filled polyesters

SOURCE: Plasticheskiye massy, no. 9, 1966, 31-36

TOPIC TAGS: polyester plastic, synthetic material, solid physical property, plasticity, plastic flow

ABSTRACT: The molding properties of two commercial curable filled polyesters (PP-1 and SVP-1) were studied in order to define the technology of molding these materials. PP-1 plastic is composed of 40% polymaleinatepolyacrylate (with 1% benzoyl peroxide), 34% quartz powder filler, and 26% powdered silica gel. The SVP-1 plastic is composed on 40% polyaminatepolyacrylate (with 2% benzoyl peroxide), 30-32% kaolin-powdered filler, 8-10% powdered silica gel, 20% fiber glass filler (20 mm in length), and 1.5% such additives as oil and pigment. The physical properties of these plastics are tabulated and graphed. The following conditions for pressure molding of PP-1 and SVP-1 were established: 20-70°C temperature range using a screw extruder and a rate of injection of 10-150 cm^3/sec. Under these conditions and at 20°C in the case of PP-1, the resulting molding pressure is 300-500 kg/cm^2. This corresponds to a molding channel pressure of

Card 1/2 UDC: 678.078 : 678.744.3.046 : 678.027:74

L 06790-67

ACC NR: AP6030849

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up to 7 kg/cm^2 and a flux of 1,000 g/cm·sec. Under the same conditions the molding pressure for SVP-1 would be 400-700 kg/cm^2. Orig. art. has: 9 figures, 2 tables and 2 formulas.

SUB CODE: 07,11/ SUBM DATE: 00/ ORIG REF: 008/ OTH REF: 006

Card 2/2 nst

KAZANSKIY, Yu.P.

Transverse schistocity indicated by layers of natural schlich. Trudy Gor.-geol.inst.Zap.-Sib.fil.AN SSSR no.13:41-44 '53. (MLRA 8:12)
(Geology, Stratigraphic)

KAZANSKIY, Yu. P.

"Cas (Senonian) Series in Northeast Chulymo-Yenisey Depression," Tr. Tomsk. un-ta, ser. geol., 132, pp 211-214, 1954

The Upper Cretaceous (chalk) deposits of the Chulymo-Yenisey depression are divided into three series: Simon or Chulymo (Senoman-Turonian), Cas (Senonian) and Antibes or Symsk (Danish stage and, possibly, paleogene lowlands). The deposits of the Cas series, reaching an apparent thickness of 50-55 meters, are represented by three phases: river-bed (yellow-grey mean-granular sands, gravels, and pebbles), paludi-lacustrine (brown-grey, rarely golden clayey sands and siltstones sometimes with grains of amber), and lacustrine (grey clays). The pebbles and gravels are represented by quartz, quartzites, and gneisses, which point to the removal of matter from east and southeast from the side of the Yenisey ridge. (RZhGeol, No 4, 1955)

Sum. No. 681, 7 Oct 55

IVANOV, K.V.; KAZANSKIY, Yu.P.

Book by Preobrazhenskii and S.G.Sarkisian "Minerals of sedimentary rocks". Reviewed by K.V.Ivanov, Iy.P.Kazanskii. Izv. AN SSSR.Ser. geol. 20 no.6:97-101 N-D '55. (MLRA 9:2)
(Rocks, Sedimentary)(Petroleum geology)(Preobrazhenskii, Ivan Aleksandrovich, 1878-)(Sarkisian, S.G.)

KAZANSKIY, Yu.P.

Stratigraphy of Jurassic sediments in the northern part of the Sudzhensk region. Izv. TPI 90:35-36 '58. (MIRA 12:2)

1. Predstavleno professorom doktorom Yu.A. Kuznetsovym.
(Anzhero-Sudzhensk region--Geology, Stratigraphic)

KAZANSKIY, Yu.P.

Facies characteristics of upper Cretaceous iron ores in the eastern part of the West Siberian Plain. Izv.vys.ucheb.zav.; geol.i razv.; geol.i razv. 2 no.5:79-86 My '59. (MIRA 12:12)

1. Tomskiy politekhnicheskiy institut im.S.M.Kirova.
(West Siberian Plain--Iron ores)

KAZANSKIY, Yu.P.

Distribution of relict minerals in the profile of the kaolin weathering crust. Izv.vys.ucheb.zav.; geol.i razv. 2 no.8: 90-94 Ag '59. (MIRA 13:4)

1. Tomskiy politekhnicheskiy institut.
(Mineralogy)

KAZANSKIY, Yu.P.; KROPANINA, L.S.; PEROZIO, G.N.

Petrographical and mineralogical characteristics of Upper Cretaceous clay rocks in the Ob' Valley protion of the Narym region. Trudy SNIIGGIMS no.10:171-183 '60. (MIRA 15:12)
(Narym region--Clay)

KAZANSKIY, Yu.P.; PEROZIO, G.N.; SOKOLOVA, M.F.

Epigenetic montmorillonite from Mesozoic deposits of the West Siberian Lowland. Dokl. AN SSSR 135 no.4:948-950 '60. (MIRA 13:11)

1. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya i Institut geologii i geofiziki Sibirskogo otdeleniya Akademii nauk SSSR. Predstavleno akademikom N.M.Strakhovym.
(Siberia, Western--Montmorillonite)

KAZANSKIY, Yu.P.; KAZARINOV, V.P.

Fifth All-Union Conference on Lithology. Geol.i geofiz. no.10:129-130 '61. (MIRA 14:12)
(Petrology--Congresses)

KAZANSKIY, Yu.P.; SOKOLOVA, M.F.

Kaolinite minerals in Upper Cretaceous and Paleogene deposits in the middle Ob' Valley. Geol. i geofiz. no.11:23-29 '61.
(MIRA 15:2)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR i Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk.
(Ob' Valley--Kaolinite)

KAZANSKIY, Yu.P.

Stability of relic minerals in a profile of a kaolin crust of weathering. Trudy SNIIGGIMS no.14:80-94 '61. (MIRA 15:8)
(Minerals)

AKUL'SHINA, Ye.P.; BGATOV, V.I.; GURARI, F.G.; GUROVA, T.I.; DERBIKOV, I.V.; YEGANOV, E.A.; KAZANSKIY, Yu.P.; KALUGIN, A.S.; KAS'YANOV, M.V.; KOSOLOBOV, N.I.; KASYGIN, Yu.A.; MIKUTSKIY, S.P.; SAKS, V.N.; TROFIMUK, A.A.; UMANTSEV, D.D.

Professor Vladimir Panteleimonovich Kazarinov; on his 50th birthday. Geol. i geofiz. no.3:122-123 '62. (MIRA 15:7)
(Kazarinov, Vladimir Panteleimonovich, 1912-)

BUDNIKOV, V.I.; KAZANSKIY, Yu.P.; LEZHNIN, A.I.; YADRENKIN, V.M.

Bentonite of the Kuznetsk Basin. Trudy SNIIGGIMS no.25:36-44 '62.
(MIRA 16:4)

(Kuznetsk Basin—Bentonite)

BOATOV, V.I.; KAZANSKIY, Yu.P.; KAZARINOV, V.P.

Fifth All-Union Lithological Conference. Sov.geol. 5 no.1: 177-180 Ja '62. (MIRA 15:2)

(Petrology--Congresses)

KAZANSKIY, Yu.P.

Distribution of Mesozoic detrital minerals of heavy fraction in the southeastern margin of the West Siberian Plain. Trudy VNIGRI no.124:31-40 '58. (MIRA 16:7)

(West Siberian Plain--Minerals)

BGATOV, V.I.; AKUL'SHINA, Ye.P.; BUDNIKOV, V.I.; GERASIMOV, Ye.K.; GUROVA, T.I.; KAZANSKIY, Yu.P.; KAZARINOV, V.P.; KONTOROVICH, A.E.; KOSOLOBOV, N.I.; LIZALEK, N.A.; MATUKHIN, R.G.; MATUKHINA, V.G.; PETRAKOV, V.U.; RODIN, R.S.; SAVITSKIY, V.Ye.; SHISHKIN, B.B.; GRIN, Ye.P., tekhn. red.

[Lithoformational analysis of sedimentary rocks] Litologo-formatsionnyi analiz osadochnykh tolshch. Pod red. V.I. Bgatova i V.P.Kazarinova). (MIRA 16:7)

1. Sibirskiy nauchno-issledovatel'skiy institutu geologii, geofiziki i mineral'nogo syr'ya.
(Rocks, Sedimentary--Analysis)

KAZANSKIY, Yuriy Petrovich; KAZARINOV, V.P., doktor geol.-mineral. nauk, red.; ALEKSANDROVSKIY, B.M., red.; YELISTRATOVA, Ye.M., tekhn. red.

[Cretaceous and Paleogene sedimentary formations in the middle Ob' Valley (West Siberian Plain).] Melovye i paleogenovye osadochnye formatsii Srednego Priob'ia. (Zapadno-Sibirskaia nizmennost'. Novosibirsk, Izd-vo SO AN SSSR, 1963. 352 p. (Akademiia nauk SSSR. Sibirskoe otdelenie. Institut geologii i geofiziki. Trudy, no. 18)

(MIRA 17:1)

KAZARINOV, V.P., otv. red.; BGATOV, V.I., red.; KAZANSKIY, Yu.P., red.; KRASHENINNIKOV, G.F., red.; SAKS, V.N., red.; YABLOKOV, V.S., red.; SHPAKOVSKAYA, L.I., red.

[Methods for compiling lithological facies and paleogeographic maps; transactions] Metody sostavleniia litologofatsial'nykh i paleogeograficheskikh kart; trudy. Novosibirsk, Izd-vo Sibirskogo otd-niia AN SSSR. Vol.1. 1963. 174 p. (MIRA 18:1)

1. Vsesoyuznoye litologicheskoye soveshchaniye. 5th. Novosibirsk, 1961.

BELOUS, N.Kh., st. nauchn. sotr.; KAZANSKIY, Yu.P.; VDOVIN, V.V.; KLYAROVSKIY, V.M.; KUZNETSOV, V.P.; NIKOLAYEVA, I.V.; NOVOZHILOV, V.I.; SENDERZON, E.M.; AKAYEV, M.S.; BABIN, A.A.; BERDNIKOV, A.P.; GORYUKHIN, Ye.Ya.; NAGORSKIY, M.P.; PIVEN', N.M.; BAKANOV, G.Ye.; GEBLER, I.V.; SMOLYANINOV, N.M.; SMOLYANINOVA, S.I.; YUSHIN, V.I., D'YAKONOVA, N.D.; REZAPOV, N.M.; KASHTANOV, V.A.; GOL'BERT, A.V.; SIDOROV, A.P.; GARMASH, A.A.; BYKOV, M.S.; BORODIN, L.V.; KYCHKOV, L.F.; KUCHIN, M.I.; SHAKHOV, F.N., glav. red.; SHPAKOVSKAYA, L.I., red.

[West Siberian iron ore basin] Zapadno-Sibirskii zhelezorudnyi bassein. Novosibirsk, Red.-izd. otdel Sibirskogo otdniia AN SSSR, 1964. 447 p. (MIRA 17:12)

1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut geologii i geofiziki. 2. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR (for Belous, Kazanskiy, Vdovin, Klyarovskiy, Kuznetsov, Nikolayeva, Novozhilov, Senderzon). 3. Institut gornogo dela (for Akayev). 4. Novosibirskoye geologicheskoye upravleniye Ministerstva geologii i okhrany nedr SSSR (for Babin, Berdnikov, Goryukhin, Nagorskiy, Piven').

(Continued on next card)

BELOUS, N.Kh.---(continued). Card 2.

Tomskiy politekhnicheskiy institut (for Lakenov, Gobler, Smolyaninov, Smolyaninova). 5. Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'-nogo syr'ya(for Yushin, D'yakonova, Rezapov, Kashtanov, Gol'bert). 6. Institut ekonomiki sel'skogo khozyaystva (for Garmash). 7. Sibirskiy metallurgicheskiy institut (for Bykov, Borodin, Kyelkov). 8. Tomskiy inzhenerno-stroitel'nyy institut (for Kuchin). 9. Chlen-korrespondent AN SSSR (for Shakhov).

KAZANSKIY, Yu.P.

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Phosphate manifestation in the Upper Cretaceous and Paleogene sediments in the middle Ob' Valley. Trudy Inst. geol. i geofiz. Sib. otd. AN SSSR no.28:87-93 '64.
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KAZARINOV, V.P., otv. red.; BGATOV, V.I., red.; KAZANSKIY, Yu.P., red.; KRASHENINNIKOV, G.F., red.; SAKS, V.N., red.; YABLOKOV, V.S., red.; SHPAKOVSKAYA, L.I., red.

[Sedimentary formations of Siberia; transactions] Osadochnye formatsii Sibiri; trudy. Novosibirsk, Red.-izd. otdel Sibirskogo otd-niia AN SSSR. Vol.2. 1964. 162 p. (MIRA 18:6)

1. Vsesoyuznoye litologicheskoye soveshchaniye. 5th, Novosibirsk.

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1. Akademiya nauk SSSR. Sibirskoye otdeleniye. Institut geologii i geofiziki.

KAZANSKIY, Yu.V., inzh.

Interfarm cement plant in Bakhchisaray. Stroi.i dor.mash. 6 no.7:26-28 Jl '61. (MIRA 14:7)
(Bakhchisaray--Cement plants)

KAZANTSEV, A., inzh.

Search is going on. IUn.tekh. 3 no.9:51-55 S '58. (MIRA 11:10)
(Krasnoyarsk Territory--Meteorites)

[redacted], A., dotsent, kand. tekhn. nauk

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KAZANTSEV, Aleksandr

The seventh decade. Izobr.i rats. no.1:12-13 Ja '61.
(MIRA 14:1)
(Research)

SOLOV'YEV, V.A., inzh.; KAZANTSEV, A.A., inzh.

Performance of the VG-10 automatic gas cutouts at a substation.
Elek. sta. 33 no.4:84 Ap '62. (MIRA 15:7)
(Electric cutours) (Electric substations)

KAZANTSEV, A.A.

Solubility of lead nitrate in water. Zhur.neorg.khim. 5 no.7:1598-1600 Jl '60. (MIRA 13:7)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
(Lead nitrate)

KAZANTSEV, A.A.

Durability of flat bottoms of steel pouring ladles. Izv. vys. ucheb. zav.; chern. met. no.2:151-163 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Open-hearth furnaces--Equipment and supplies)

SOKOLOV, L.D.; CHELYSHEV, N.A.; ZHDANOV, I.A.; KAZANTSEV, A.A.

Investigating the wear resistance of bearing textolite in conditions of work on rolling mills. Izv. vys. ucheb. zav.; chern. met. no.2: 172-177 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Bearings (Machinery)) (Rolling mills)

KAZANTSEV, A.A.

Design for strength of rigidity bands for steel-pouring ladles. Izv. vys.ucheb.zav.; chern.met. 4 no.6:175-184 '61. (MIRA 14:6)

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(Open-hearth furnaces—Equipment and supplies)

KAZANTSEV, A.A.

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1. Sibirskiy metallurgicheskiy institut.
(Open-hearth furnaces--Equipment and supplies)
(Thermal stresses)

SOKOLOV, L.D.; SHIROKOV, V.N.; GREBENIK, V.M.; VEKSIN, I.N.; BAKLUSHIN, I.L.; LYULENKOV, V.I.; SABANTSEV, V.P.; KAZANTSEV, A.A.

Investigating stresses in models of steel pouring ladles. Izv. vys. ucheb. zav.; chern. met. 4 no.10:147-156 '61. (MIRA 14:11)

1. Sibirskiy metallurgicheskiy institut.
(Smelting furnaces--Equipment and supplies)
(Thermal stresses--Models)

KAZANTSEV, A.

Payment

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SO: Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl

KAZANTSEV, A.

Results of the practice of constant clearing. Den. i kred. 14 no.4: 9-18 Ap '56. (Clearinghouse) (MIRA 9:7)

KAZANTSEV, A.

The issue of credit to self-supporting organizations based on payment documents in transit. Den. i kred. 15 no.7:27-34 Jl '57. (MLRA 10:8)

(Credit)

KAZANTSEV, A.; LEVCHUK, I.

Issuing credit for capital investments. Vop.ekon. no.11:59-69 N '58. (MIRA 11:11)
(Capital investments) (Banks and banking)

SHUMOV, N.S., kand.ekonom.nauk; LAPTEV, Ye.N.; KAZANTSEV, A.I., kand. ekonom.nauk; ZUYEVA, Z.I.; KOCHEGAROVA, A.I.; SHRAYBER, I.I., kand.ekonom.nauk; TSAPIN, I.T.; KITAYGORODSKIY, I.P.; ZAVERNYAYEVA, L., red.; TELEGINA, T., tekhn.red.

[Payments in industry] Raschety v promyshlennosti. Moskva, Gosfinizdat, 1959. 125 p. (MIRA 12:11)

1. Moscow. Nauchno-issledovatel'skiy finansovyy institut. 2. Zaveduyushchiy otdeleniyem Nauchno-issledovatel'skogo finansovogo instituta Ministerstva finansov SSSR (for Shumov). 3. Starshiy ekonomist Nauchno-issledovatel'skogo finansovogo instituta Ministerstva finansov SSSR (for Laptev). 4. Nachal'nik upravleniya kreditovaniya promyshlennosti sovnarkhozov Pravleniya Gosbanka SSSR (for Kazantsev). 5. Nachal'nik planovo-ekonomicheskogo otdela Moskovskoy gorodskoy kontory Gosbanka (for Zuyev). 6. Ekonomist Moskovskoy gorodskoy kontory Gosbanka (for Kochegarova). 7. Zamestitel' nachal'nika planovo-ekonomicheskogo upravleniya Rossiyskoy respublikanskoy kontory Gosbanka (for Shrayber). 8. Glavnyy bukhgalter moskovskogo khlebozavoda No.4 (for TSapin). 9. Ekspert otdela kredita i denezhnogo obrashcheniya Ministerstva finansov SSSR (for Kitaygorodskiy).
(Payment)

KAZANTSEV, Aleksey Ivanovich, kand.ekonom.nauk; PARFAN'YAK, P.A., prof., otv.red.; LOGOVINSKAYA, R., red.izd-va; LEBEDEV, A., tekhn.red.

[Clearing in the national economy of the U.S.S.R.] Vzaimnye raschety v narodnom khoziaistve SSSR. Moskva, Gosfinizdat, 1959. 166 p. (MIRA 12:8)
(Clearinghouse)

KAZANTSEV, A.

Industrial development and the State Bank. Den. i kred. 19 no.11:10-20 N '61. (MIRA 14:12)

(Banks and banking)
(Russia—Industries)

IKONNIKOV,VV., prof. Prinimali uchastiye: GUSAKOV, A.D., prof.; SHENGER, Yu.Ye., prof.; BATYREV, V.M., doktor ekon. nauk; KAZANTSEV, A.I., dots.; BUZYREV, V.M., prof.; BYSTROV, F.P., prof.; NADEZHDINA, A., red.; POGODIN, Yu., red.; TELEGINA, T., tekhn. red.

[Monetary circulation and credit in the U.S.S.R.]Denezhnoe obrashchenie i kredit SSSR. Kollektiv avtorov pod rukovodstvom V.Ikonnikova. Moskva, Gosfinizdat, 1962. 470 p. (MIRA 16:1)
(Money) (Credit)

SITNIN, V.K., red.; BARNGOL'TS, S.B., red.; BYCHKOV, P.S., red.; MARGULIS, A.Sh., red.; METT, G.Ya., dots., red.; KAZANTSEV, A.I., red.; SYCHEV, N.G., red.

[Organization and methods for the economic analysis of the work of enterprises; transactions] Organizatsiia i metody ekonomicheskogo analiza raboty predpriiatii; trudy. Moskva, Gosfinizdat, 1963. 663 p. (MIRA 17:4)

1. Vsesoyuznoye nauchno-tekhnicheskoye soveshchaniye po organizatsii i metodike ekonomicheskogo analiza raboty promyshlennykh predpriyatiy. 1st, Moscow, 1963. 2. Predsedatel' Komiteta ekonomiki i organizatsii proizvodstva tsentral'nogo pravleniya Nauchno-tekhnicheskogo obshchestva mashinostroitel'noy promyshlennosti (for Mett).

NIKITIN, A.I., prof., otv. red.; DOBYCHIN, B.D., prof., zam. otv. red.; ABRAMOV, K.T., dots., red.; KAZANTSEV, A.I., prof., red.; TIMOFEYEV, S.I., prof., red.; KHODOS, Kh.B., prof., red.; BOLOTOV, M.P., prof., red.; SHERSHNEV, P.A., prof., red.; VAYS, S.I., prof., red.; KLIMOV, K.A., dots., red.; SEMENOV, V.V., dots., red.; KARNAKOV, B.I., dots., red.;

[Materials on the influence of physical, chemical and biological factors on the animal and human organism]Materialy o vliianii fizicheskikh, khimicheskikh i biologicheskikh faktorov na organizm zhivotnykh i cheloveka. Irkutsk, 1961. 317 p. (MIRA 15:12)

1. Irkutsk. Gosudarstvennyy meditsinskiy institut. 2. Zaveduyushchiy kafedroy terapevticheskoy stomatologii Irkutskogo meditsinskogo instituta (for Vays). 3. Zaveduyushchiy kafedroy fakul'tetskoy khirurgii Irkutskogo meditsinskogo instituta (for Dobychin). 4. Zaveduyushchiy kafedroy infektsionnykh bolezney Irkutskogo meditsinskogo instituta (for Karnakov). 5. Zaveduyushchiy kafedroy normal'noy fiziologii Irkutskogo meditsinskogo instituta (for Nikitin).

(PHYSIOLOGY, PATHOLOGICAL)

KAZANTSEV, Aleksey Ivanovich; TRUBIN, M.I., red.; GREYVER, I.K., tekhn. red.

[Lime and crop yield] Izvest' i urozhai. Petrozavodsk, Gos. izd-vo Karel'skoi ASSR, 1961. 38 p. (MIRA 14:10)
(Karelia—Crop yields) (Lime)
(Karelia—Fertilizers and manures)

NIKITIN, A.I., prof., otv.red.; DOBYCHIN, B.D., prof., zam.otv.red.; ABRAMOV, K.T., kand.med.nauk, red.; KAZANTSEV, A.I., prof., red.; TIMOFEYEV, S.I., prof., red.; KHODOS, Kh.B., prof., red.; BOLOTOV, M.P., prof., red.; SHERSHNEV, P.A., prof., red.; VAYS, S.I., prof., red.; KLIMOV, K.A., dotsent, red.; SEMENOV, V.V., dotsent, red.; DONSKOV, V.V., dotsent, red.; KARNAKOV, B.I., dotsent, red.; KRAKAU, S.I., red.

[Collection of works of the Irkutsk State Medical Institute devoted to its 40th anniversary] Sbornik trudov Irkutskogo gosudarstvennogo meditsinskogo instituta, posviashchennyi 40-letiiu so dnia ego osnovaniia. Irkutsk, 1959. 442 p. (MIRA 14:1)

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(MEDICINE)

KAZANTSEV, A.I.

On the 40th anniversary of the department of Normal Anatomy of the Irkutski Medical Institute. Arkh. anat. gist i embr. 38 no. 6:105-110 Je '60. (MIRA 13:12)

1. Kafedra normal'noy anatomii Irkutskogo meditsinskogo instituta (zav. - prof. A.I. Kazantsev). Adres avtora: Irkutsk, ul.Krasnogo Vosstaniya, 1, Meditsinskiy institut, kafedra normal'noy anatomii.
(IRKUTSK—ANATOMY—STUDY AND TEACHING)

DOBYCHIN, B.D., prof., red.; KAZANTSEV, Apollinariy Innokent'yevich, prof., doktor med.nauk, red.; SHAFIROVA, A.S., red.; KARAS', V.D., tekhn.red.

[Collected papers on the structure of the peripheral nervous system] Sbornik nauchnykh rabot po izucheniiu struktury perifericheskoi nervnoi sistemy. Pod red. B.D.Bobychina i A.I.Kazantseva. Irkutsk, 1959. 189 p.

(MIRA 14:2)

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(NERVES, PERIPHERAL)

KAZANTSEV, A.K.

Fastening of specimens in the wedge-shaped clamps of a fatigue testing machine. Zav. lab. 31 no. 12:1535-1536 '65
(MIRA 19:1)

VAL'KOV, Grigoriy Petrovich; KAZANTSEV, A.M., dotsent, kand.tekhn.nauk, retsenzent; POSTNIKOV, S.A., inzh., retsenzent; RZHECHITSKIY, B.D., inzh., red.; MAKRUSHINA, A.N., red.izd-va; BOBROVA, V.A., tekhn.red.

[Organization and mechanization of cargo operations] Organizatsiia i mekhanizatsiia gruzovykh rabot. Moskva, Izd-vo "Rechnoi transport," 1959. 388 p. (MIRA 12:4)
(Cargo handling)

KAZANTSEV, Anatoliy Mikhaylovich, kand. tekhn. nauk, dots; Prinimali uchastiye: LIVSHITS, I.M., inzh.; MAKAR'IEVSKIY, D.P., inzh.; GUSEV, M.N., kand. tekhn. nauk, dotsent, retsenzent; SHEVALDYSHEV, L.G., inzh., retsenzent; BARIT, G.Yu., red.; VOLCHOK, K.M., tekhn. red.

[Technical norms in shipbuilding and ship repairs] Tekhnicheskoe normirovanie v sudostroenii i sudoremonte. Leningrad, Izd-vo "Rechnoi transport," 1962. 383 p. (MIRA 15:5)
(Shipbuilding--Production standards)
(Ships--Maintenance and repair--Production standards)

KAZANTSEV, Anatoliy Mikhaylovich, dots., kand. tekhn. nauk;
KALININ, Boris Arkhipovich, inzh.; SHANIN, Yu.N., retsenzent;
RZHECHITSKIY, B.D., retsenzent; YELISTRATOV, S.I., red.;
LOBANOV, Ye.M., red. izd-va; RIDNAYA, I.V., tekhn. red.

[Establishing work norms for loading and unloading work] Normirovanie truda na pogruzochno-razgruzochnykh rabotakh. Moskva, Izd-vo "Rechnoi transport," 1962. 196 p. (MIRA 15:7)
(Loading and unloading--Production standards)

KAZANTSEV, A.M., kand.tekhn.nauk, dotsent

Methods of establishing flowsheets for the loading and unloading of ships. Trudy LIVT no.3:23-32 '60. (MIRA 15:3)
(Cargo handling)

KAZANTSEV, A.M., kand.tekhn.nauk, dotsent

Norm system for loading and unloading operations. Izv.vys.ucheb.zav.; LVI no.6:57-64 '64. (MIRA 17:12)

KAZANTSEV, A. N.

"Radio Predictions and their Practical Applications to the Calculations of Usable Frequencies," Iz. Ak. Nauk SSSR, Otdel. Tekh. Nauk, No. 9, 1946.

KAZANTSEV, A. N. PA 11T38

USSR/Solar Phenomena Mar 1946
Ionospheric measurements

"Data on the Ionosphere Secured During the Solar Eclipse of Jul 1945," A. N. Kazantsev, 8 pp

"Izv Ak Nauk Ser Fiz" Vol X, No 3 - p.261-7

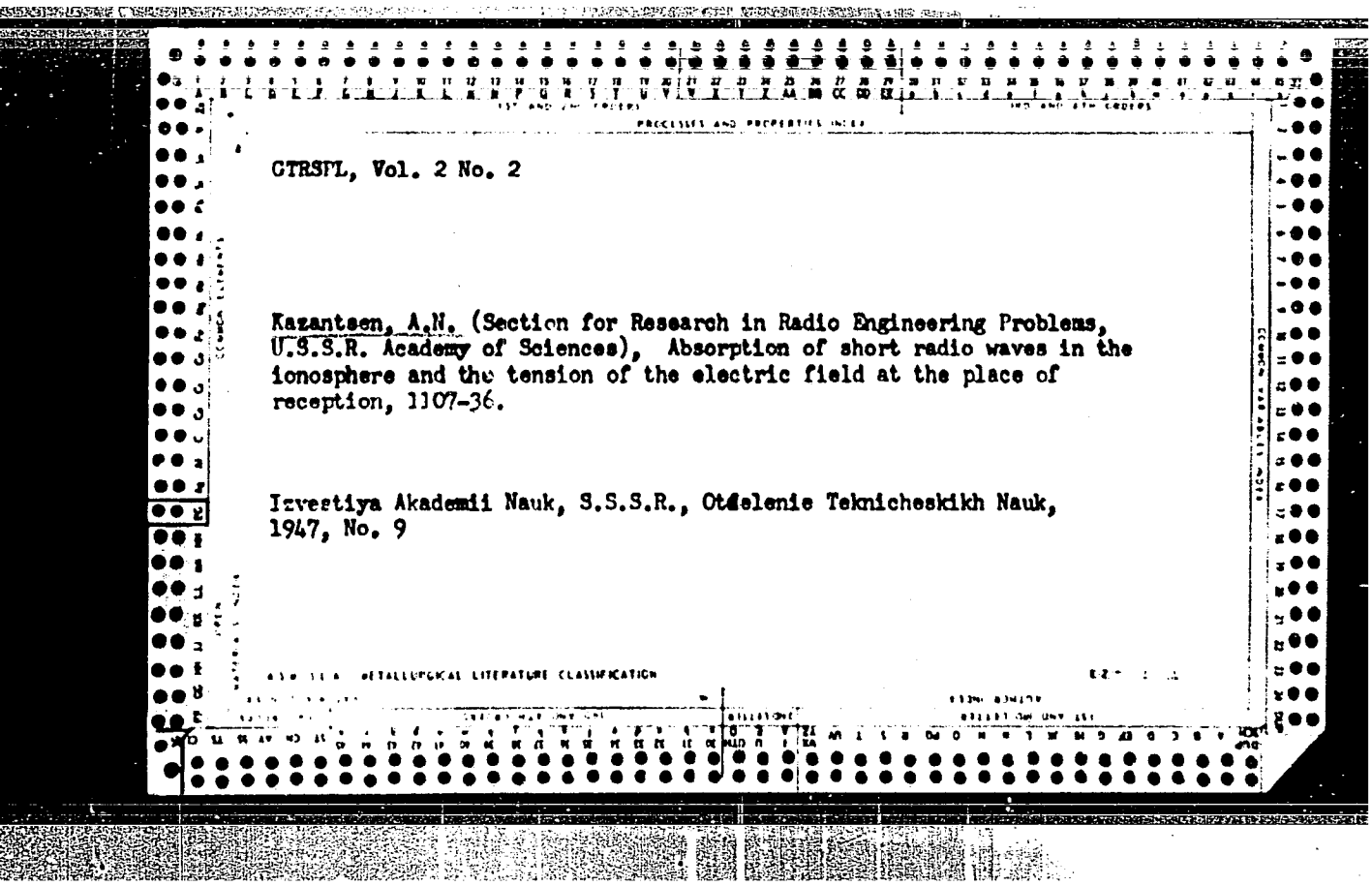
Six graphs showing the relationship between time of day and the height of the ionosphere, ratio of incident to reflected amplitude of impulse, intensity of the electric field at the Leningrad station, Kuybyshev station, etc.

11T38

KAZANTSEVA, A. N.

"Results of Investigation of the Ionosphere during the Solar Eclipse of 9 July 1945", Iz AN SSSR, Otd Tekh Nauk, No 9, 1946 (1297-1304).
(Meteorologiya i Gidrologiya, No 6 Nov/Dec 1947)

SO: U-3218, 3 Apr 1953



CTRSTL, Vol. 2 No. 2

Kazantsev, A.N. (Section for Research in Radio Engineering Problems, U.S.S.R. Academy of Sciences), Absorption of short radio waves in the ionosphere and the tension of the electric field at the place of reception, 1107-36.

Izvestiya Akademii Nauk, S.S.S.R., Otdelenie Teknicheskikh Nauk, 1947, No. 9

KHAYTSEV, A.N.

USSR/Physics 21 Jan 1948
Ionosphere
Ionospheric Measurements

"First Observations of a Nocturnal Ionized Layer Lying Above the F_2 Layer," A. N. Khaytsev, 4 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 3

p.479-82

Discusses first observations of ionized layer lying above the F_2 layer made in 1934. Results compared with recent observations of same phenomenon. Conclusions are that above the F_2 layer an ionized layer is frequently observed having a critical frequency less than the critical frequency of the F_2 layer. This layer frequently observed in disturbed condition of

[redacted]

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USSR/Physics (Contd) 21 Jan 1948

the ionosphere and possibly created by corpuscular radiation of the sun. As a rule, the layer is a nocturnal layer, appearing about sunset and disappearing at sunrise. Submitted by Academician B. A. Vvedenskiy, 13 Nov 1947.

Translation 568463

KAZANTSEV, A.

B. Lyapunov's article "Out of the Depths of the Universe," published in the magazine Znaniye-sila (Knowledge is Strength) (No. 10, 1950), and A. Kazantsev's "Guest From the Cosmos," published in Tekhnika-molodyozhi (Technology for Young People) No. 3, 1951.

Soviet Source: Literaturnaya-gazeta
Aug 4, P. 3

Current Digest of the Soviet Press (in [redacted] Library), Vol. 3, No. 35, 1951, P. 8

KAZANTSEV, A., professor.

Propagation of metre waves to great distances. Radio no.12: 34-35 D '55.
(Radio waves) (MLRA 9:4)

KAZANTSEV, A.N., professor.

Aleksandr Stepanovich Popov; 50th anniversary of his death.
Elektrichestvo no.1:1-2 Ja '56. (MLRA 9:3)

1. Moskovskiy energeticheskiy institut imeni Molotova.
(Popov, Aleksandr Stepanovich, 1859-1906)

[illegible], n.

[illegible] vol. 25, no. 6, June 1966

[illegible]

[illegible] vol. 6, [illegible]

KAZANTSEV, A.N.

109-11-3/8

AUTHOR: Kazantsev, A.N.

TITLE: Investigation of the Ionospheric Propagation of Radio-waves in the USSR (Issledovaniye ionosfernogo rasprostraneniya radiovoln v SSSR)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.11, pp. 1360 - 1374 (USSR).

ABSTRACT: Investigation of the problem was originated by Heaviside in 1902 and by Kennelly, who put forward the hypothesis that radio-waves can be reflected from the upper ionised regions of the atmosphere. In the Soviet Union, the problem was first considered in 1920 by M. V. Shuleykin who determined all the parameters of an ionised gas and proposed a theory of the ionospheric propagation of radio-waves. The Shuleykin theory comprises formulae for the permittivity and conductivity of the ionised medium, the propagation and absorption coefficients, the refraction index of the ionised gas and the phase and group propagation velocities. Shuleykin later amplified the theory to take into account the magnetic field of the Earth. This effect has since been further investigated by L.A. Zhekulin and V.L. Ginzburg. The physical principles of the propagation of shortwaves were first studied by D.Z. Rozhanskiy and A.N. Shchukin, who investigated the fading effect and applied the

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Kazantsev measured the heights of the ionised layers by using a pulse transmitter operating at 15 kW. Kessenikh proposed an original method for determining the reflection coefficients of

Card 2/4

Investigation of the Ionospheric Propagation of Radio-waves in the USSR. 109-11-3/8

ionised layers and later described the so-called "Continental effect". In 1936, Bulatov invented the "panoramic" method for the investigation of the ionosphere. Over a number of years, the ionosphere has been studied regularly by a number of Soviet scientific institutes; in particular, the ionospheric conditions in the Polar regions have been studied intensively.

One of the important problems in radio-engineering is the design of shortwave communication links. The fundamentals of the design were first laid down by Shuleykin in 1927, who proposed a method for determining the electrical field at a given distance from the radiating antennae. The method was further elaborated by Shchukin in 1932. Kazantsev proposed a method for the determination of the maximum usable frequencies and, in 1945-1950, gave a method of calculation of the short-wave fields; the latter method is based on the evaluation of the absorption coefficients of the ionosphere. Today, the problem of ionospheric propagation is being studied systematically and in the near future, it is intended to investigate (both theoretically and experimentally) the following phenom-

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109-11-3/8

Investigation of the Ionospheric Propagation of Radio-waves in the USSR:

scattering of metre waves over long distances, long-distance propagation of shortwaves (multiple propagation and echo), absorption of radio-waves for vertical and inclined incidence and atmospheric interference.
There are 4 figures and 87 references, 69 of which are Slavic.

AVAILABLE: Library of Congress
Card 4/4

KAZANTSEV, A.

107-57-6-20/57

AUTHOR: Kazantsev, A.

TITLE: Monitoring of Radio Signals from the Artificial Earth Satellite and Its Scientific Importance (Nablyudeniya za radiosignalami s iskusstvennogo sputnika Zemli i ikh nauchnoye znacheniye)

PERIODICAL: Radio, 1957, Nr 6, pp 17-19 (USSR)

ABSTRACT: The first Soviet satellite will have two radio transmitters with frequencies of 20 MC and 40 MC and output of about 1 watt each. Satellite radio transmitters will emit pulses of 0.05 to 2.07 seconds in duration. A pulse of one transmitter will correspond to the spacing period of the other. The shape of emitted signals will depend on ambient conditions of the satellite. Therefore, each amateur report about the shape of the signals received at a definite precise time will have considerable importance. The ionosphere with its three layers is briefly described. The satellite frequencies, 20 and 40 MC, lie higher than the F2 layer critical frequency. Therefore, monitoring the satellite frequencies may give some information about the F2 layer. As reflection of a radio beam from the ionosphere depends, among other factors, upon the angle of incidence of the beam, radio monitors will receive first the higher frequency signal, then the lower frequency signal. The time shift between the

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[illegible] of the satellite. It is desirable to record the moments of appearance and disappearance of each signal. It is also highly desirable that Doppler effect audio frequency be recorded on tape along with the precise time of the signal.

KAZANTSEV, A.N., doktor tekhn. nauk, prof.

Era of cosmic flights and interplanetary travels has begun. Tekh. mol. 25 no.11:19 N '57. (MLRA 10:11)
(Interplanetary voyages)

KAZANTSEV, A.N.

X. GENERAL ASSEMBLY OF THE INTERNATIONAL AETRONOMICAL UNION
Moscow, 12-20 August '58

Joint Discussion on Astronomical Observations made by means of Artificial Satellites, Rockets and Balloons

ABSORPTION OF RADIO-WAVES IN THE IONOSPHERE AND DISTRIBUTION OF ELECTRON CONCENTRATION IN THE F_2- LAYER ACCORDING TO THE MEASUREMENTS OF THE ELECTRIC FIELD STRENGTH OF RADIO SIGNALS FROM ARTIFICIAL EARTH SATELLITES

A.N. Kazantsev

Summary of the report

One of the methods used in the treatment of the results obtained during radio observations of earth satellites is considered.

The method consisted of determining the radio wave absorption coefficients by measurements of the electric field strength at comparatory posts.

Over the territory of the Soviet Union the earth satellites sometimes passed below the maximum of the F_2-layer, sometimes - above it, and sometimes - near it.

Analysing the measurements of the field strength of satellite radio signals in the area of direct visibility and comparing integral coefficients of absorption at different altitudes of a ss satellite in relation to the

with exponencial extention. With the use of a distribution model of electron concentration with altitude the most closely corresponding to the experimental data, the number of electrons in a vertical column with 1 cm^2 cross-section was determined both for the lower and upper regions of the F_2-layer. For the upper region this figure turned out to be twice that for the lower one. At great distances of a satellite from the observation post beginning with 6,000-8,000 km the field strength exceeded the values obtained from the equation of an ideal radio transmission. This indicates that at great distances electromangetic energy propagated due to formation of ionosphere waveguides which made it possible to receive satellite radio signals at great distances reaching 16,000 km.

AUTHORS: Kazantsev, A.N., Romanova, T.S., Klementenko, A. Ya.

TITLE: Absorption of Radio Waves in the Ionosphere From the Radio-Observations on the Artificial Earth Satellites (Pogloshcheniye radiovoln v ionosfere po radionablyudeniyam za iskusstvennymi sputnikami zemli)

PERIODICAL: Radiotekhnika i elektronika, 1958, Vol 3, Nr 9, pp 1107-1121 (USSR)

ABSTRACT: The radio waves propagated in an ionised medium are attenuated due to the collisions of the charged particles which undergo harmonic motion under the influence of the field. In this work the absorption coefficients of radio waves in the ionosphere are calculated by employing the Kazantsev method (Refs.1, 2 and 3). The method is valid under the following assumptions: (1) the absorption is determined for those segments of the radio wave trajectory at which it actually takes place, that is, in the ionised layers of the atmosphere; (2) two types of overall absorption are considered; these have a different frequency dependence. The absorption of waves radiated from the artificial Earth satellites in the ionised layers lying below the layer F_2 (layers D, E and F_1) was the absorption of the first type (transmission of waves through a layer). As

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regards layer F_2 , the two Soviet satellites were sometimes above it (especially in the Northern Hemisphere) and sometimes below it. The following three cases of the absorption coefficient are therefore considered: a) transmission of waves through layers D, E, and F_1, b) reflection of waves from the F_2-layer, and c) transmission of waves through layer F_2 . First, expressions for the attenuation coefficients are derived theoretically. For this purpose it is assumed that the electron concentration of an ionised layer can be expressed by:

$$N = N_{max}\left(\frac{2h}{h_m} - \frac{h^2}{h_m^2}\right)^2 \qquad (1)$$

where h is the height of the lower boundary of the layer and h_m is the half-thickness of the layer. For the

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transmission of waves through layers D, E, F_1, the number of electron collisions at a height h can be expressed by Eq.(2) and the integral absorption coefficient by Eq.(3), where H is the height of the atmosphere and $a = f/f_{kp}$, where f_{kp} is the critical frequency. Eq.(3) can be expanded into Eq.(4) or for the case of $f \gg f_{kp}$ it can be expressed by Eq.(5). The absorption coefficient for the case of the waves reflected from layer F_2 is expressed by Eq.(8), where h_o is the true height of reflection above the lower boundary of the layer. If the electron concentration is given by the bi-parabolic law (see Eq.1), this absorption coefficient is expressed by Eq.(10), where F and E are complete elliptical integrals of the first and the second kind, respectively. The absorption during the passage of waves through F_2 is expressed by Eq.(14) for the lower region of the layer and by Eq.(15) for the upper region; a parabolic law for the electron concentration (see Eq.13) was assumed in these equations. If the

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electron concentration is expressed by the bi-parabolic law, the two absorption coefficients are given by Eqs.(16) and (17) respectively. For the case of an exponential concentration distribution, the absorption for the upper region of the layer is expressed by Eq.(21). The measurements of the field intensity produced by the two Soviet satellites were done by radio-comparator stations of the Soviet Ministry of Communications. The stations were furnished with field intensity meters with automatic registering devices and were capable of recording fields down to 1 μV/m. The authors were able to use the results of the measurements of Moscow and Khabarovsk stations, which were carried out at 20 Mc/s. Only the results obtained at these stations during the first three days **the first satellite was in orbit** (October 5, 6 and 7, 1957) were analysed in detail, since they are the most reliable and the most complete. Also the measurements taken on the second satellite

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during November 3, 7 and 8, 1957 were analysed. The experimental points giving the field intensity as a function of distance are plotted in Figs.2 and 3. The absorption coefficients for the various layers of the ionosphere as a function of distance are shown in Fig.8; Γ_Σ denotes the overall absorption coefficient; the full curves refer to experimental results while the dashed curves are calculated. The absorption coefficients for the F_2-layer are shown in Fig.9; curve 1 was taken experimentally while curves 2, 3, 4 and 5 were calculated for different exponents k . The analysis of the field attenuation at medium and long distances can be done by considering successive reflections of the waves from the Earth and from the ionised layers (see Fig.11). For the medium distances (between 2000 and 6000 km) the calculated and the experimental results are in good agreement, as can be seen from Fig.12. It was found, however, that at great distances (over 6000 km), the measured field is generally higher than the calculated results; no adequate explanation of this phenomenon has been proposed, but it is thought that the theory put forward by Khvoykova (Ref. 10)

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which assumes the existence of a waveguide channel in the lower region of the F_2-layer, might provide a possible explanation. The paper contains 12 figures and 10 references. 7 of the references are Soviet and 3 are English.

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KAZANTSEV, A.

INTERNATIONAL GEOPHYSICAL YEAR

"Preliminary Data on Propagation of Radio Waves"
by A. Kazantsev, Professor, Doctor of Technical Sciences.
Radio, No 12, December 1958, pp 7-8.

Relates briefly how signals from the satellite can throw new light on the various ionized layers around the atmosphere.

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KAZANTSEV, A.N., professor

Boomerang radio beam; Kabanov effect. IUn.tekh. 5 no.3:40-42 Mr '61. (MIRA 14:6)
(Ionosperic radio wave propagation)

KAZANTSEV, A.N.

AUTHOR: Ovcharenko, E. 107-57-5-26/43

TITLE: Long-Distance VHF Propagation (Dal'neye rasprostraneniye UKV)

PERIODICAL: Radio, 1957, Nr 5, pp 22-23 (USSR)

ABSTRACT: Recently a conference on long-distance vhf propagation was held in Moscow; it was organized by these three organizations: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi imeni A.S. Popova (Scientific and Engineering Society of Radio-Engineering and Electrocommunication), Vsesoyuznyy nauchnyy sovet po radiofizike i radiotekhnike AN SSSR (All-Union Scientific Council for Radiophysics and Radio Engineering, AS USSR), Institut rdaiotekhniki i elektroniki AN SSSR (Institute of Radio Engineering and Electronics, AS USSR). Over 250 persons took part in the activities of the Conference; among them scientists and professors from Leningrad, Khar'kov, Gor'kiy, Odessa, Tomsk, and other cities. Fifteen reports were delivered and discussed, of which 6 were devoted to vhf tropospheric scatter propagation. Professor A.G. Arenberg, Doctor of Technical Sciences, opened the Conference. A brief outline of today's investigations and uses of tropospheric propagation is presented in the article. Professor A.N. Kazantsev delivered a report on the "Diffused Propagation of Meter Radio Waves in the Ionosphere" in which he briefly reviewed the materials of the Eighth Plenary Conference of the International Consultative Committee for Radio (Warsaw, September 1956). American and Canadian commercial scatter-propagation communication lines were mentioned.

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